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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Appeal 2009-007486
Application 10/664,039
Technology Center 3700

Before LINDA E. HORNER, STEVEN D.A. McCARTHY
and STEFAN STAICOVICI, *Administrative Patent Judges*.

DECISION ON APPEAL

1

2 The Appellant appeals under 35 U.S.C. § 134 from the Examiner's
3 decision finally rejecting claims 1 and 4-17. We have jurisdiction under 35
4 U.S.C. § 6(b).

1 We sustain the rejections of claims 1, 4-6, 8, 10-13 and 15 under 35
2 U.S.C. § 103(a) as being unpatentable over Åsum (US 5,836,810, issued
3 Nov. 17, 1998) and Blank (US 6,386,873 B1, issued May 14, 2002); and the
4 rejections of claims 7, 9, 14 and 16 under § 103(a) as being unpatentable
5 over Åsum, Blank and Kyotani (US 4,690,642, issued Sep. 1, 1987).

6 We do not sustain the rejection of claim 17 under § 103(a) as being
7 unpatentable over Åsum and Blank.

8 The claims on appeal relate to dental strips for reducing tooth
9 structure interproximally to correct for inadequate space caused by dental
10 crowding and in restorative dentistry to trim or contour various types of
11 restorative materials such as amalgam or composite resin. (Spec. 1, para.
12 02). The Specification states that single-sided and double-sided abrasive
13 strips already were widely used in modern dentistry at the time of the
14 Appellant's filing. (*Id.*)

15 Claim 1 recites:

- 16 1. An interproximal strip comprising:
17 a plurality of zones; said plurality of zones
18 comprising at least a first, second, third and fourth
19 zones; wherein:
20 said first zone is disposed centrally on said
21 interproximal strip and is substantially smooth on
22 at least a first face of said interproximal strip;
23 said second zone is disposed in longitudinal
24 succession of said first zone on said first face of
25 said interproximal strip;
26 said second zone comprising a first abrasive;
27 said third zone is disposed on said first face
28 of said interproximal strip and is disposed on an
29 opposite side of said first zone with respect to said

second zone;

said third zone comprising a second abrasive material;

said fourth zone is disposed on a second face of said interproximal strip;

said fourth zone comprising a third abrasive material.

ISSUES

The Examiner finds (FF 1) that Åsum shows an interproximal strip 22 (see Åsum, fig. 7) having a plurality of zones comprising a smooth central first zone 25, a second abrasive zone 24 next to the first zone and a third abrasive zone 24 on the opposite side of the first zone; (FF 2) that Åsum does not show a fourth abrasive zone on a second side; and (FF 3) that Blank teaches that it is well known to use abrasive on one or on both sides (Blank, col. 4, ll. 2-3). (Ans. 3.) The Appellant does not appear to contest these findings. We adopt these uncontested findings as our own.

The Appellant argues the rejections of claims 1, 4-6 and 8 as a group for purposes of the rejection under § 103(a). (Br. 4-10.) Claim 1 is representative. See 37 C.F.R. § 41.37(c)(1)(vii). Although claims 10-13, 15 and 17 are method claims rather than structural claims like claims 1, 4-6 and 8, the Appellant provides no arguments addressing the patentability of claims 10-13 and 15 over Åsum and Blank separate from the arguments directed against the rejection of claim 1.

With respect to representative claim 1, the Appellant contends that the Examiner has not provided adequate evidentiary support for the conclusion (see Ans. 3) that “[i]t would have been obvious to one of ordinary skill in the

1 art to modify Åsum to include abrasive on both sides as taught by Blank in
2 order to deliver the abrasive action to the desired locations.” (Br. 7.) In
3 particular, the Appellant contends that the Examiner has provided
4 inadequate evidentiary support for the apparent reason provided by the
5 Examiner to explain why one of ordinary skill in the art would have
6 combined the teachings of the reference, either in the form of a citation to
7 text in Åsum or Blank showing that a person of ordinary skill in the art
8 would have been motivated to combine the elements disclosed by Åsum and
9 Blank in the fashion claimed (Br. 7); or a declaration providing factual
10 evidence on which the Examiner relies in reaching the conclusion (Br. 4-5).

11 The Examiner finds (FF 4) that Kyotani teaches using different
12 abrasives on one side (Kyotani, fig. 4) or on different sides (*id.*, fig. 5) of an
13 interproximal strip. (Ans. 4.) The Appellant does not appear to contest this
14 finding. We adopt this uncontested finding as our own.

15 The Appellant argues the rejections of claims 7, 9, 14 and 16 as a
16 group for purposes of the rejection under § 103(a). (Br. 13-15.) With
17 respect these claims, the Appellant contends that one of ordinary skill in the
18 art would have had no reason to combine the teachings of Kyotani with the
19 teachings of Åsum and Blank in the fashion claimed without the benefit of
20 the Appellant’s Specification. (Br. 15.) The Appellant also contends that
21 the Examiner has provided inadequate evidentiary support for the apparent
22 reason provided by the Examiner to explain why one of ordinary skill in the
23 art would have combined the teachings of the reference, either in the form of
24 a citation to text in Åsum, Blank or Kyotani showing that a person of
25 ordinary skill in the art would have been motivated to combine the elements
26 disclosed by Åsum and Blank in the fashion claimed (Br. 14); or a

1 declaration providing factual evidence on which the Examiner relies in
2 reaching the conclusion (Br. 11-12).

3 The Appellant presents an additional contention directed against the
4 rejection of claim 17. (Br. 10.) With respect to claim 17, the Appellant
5 contends that the Examiner has not provided adequate evidentiary support
6 for the conclusion (*see* Ans. 3) that “the method steps are obvious uses of the
7 shown structure to one of ordinary skill in the art.” (Br. 10.) More
8 specifically, the Appellant contends that the Examiner has failed to provide
9 some rational underpinning for the conclusion that the combined teachings
10 of Åsum and Blank would have provided one of ordinary skill in the art
11 reason to perform a method including the steps of creating a space between
12 two teeth and increasing the space between the two teeth with a single
13 interproximal strip. (*Id.*)

14 Only issues and findings of fact contested by the Appellants have
15 been considered. *See Ex Parte Frye*, 94 USPQ2d 1072, 1075-76 (BPAI
16 2010). This Appeal turns on three issues:

17 Has the Examiner articulated reasoning with some
18 rational underpinning sufficient to support the conclusion that
19 the structure of representative claim 1 would have been obvious
20 from the combined teachings of Åsum and Blank?

21 Has the Examiner articulated reasoning with some
22 rational underpinning sufficient to support the conclusion that
23 the methods of claims 7, 9, 14 and 16 would have been obvious
24 from the combined teachings of Åsum, Blank and Kyotani?

25 Has the Examiner articulated reasoning with some
26 rational underpinning sufficient to support the conclusion that

1 the method of independent claim 17 would have been obvious
2 from the combined teachings of Åsum and Blank?

3

4

FINDINGS OF FACT

5 Those additional findings of fact necessary to the disposition of this
6 appeal will appear in the Analysis section of the opinion.

7

8

PRINCIPLES OF LAW

9 A claim is unpatentable for obviousness under section 103(a) if “the
10 differences between the subject matter sought to be patented and the prior art
11 are such that the subject matter as a whole would have been obvious at the
12 time the invention was made to a person having ordinary skill in the art to
13 which said subject matter pertains.” In *Graham v. John Deere Co.*, 383 U.S.
14 1 (1966), the Supreme Court set out factual inquiries to be considered in
15 determining whether claimed subject matter would have been obvious:

16 Under § 103, the scope and content of the prior art
17 are to be determined; differences between the prior
18 art and the claims at issue are to be ascertained;
19 and the level of ordinary skill in the pertinent art
20 resolved. Against this background, the
21 obviousness or nonobviousness of the subject
22 matter is determined.

23 *Id.*, 383 U.S. at 17. In order to establish a prima facie case that a claim is
24 obvious based on teachings of prior art references, the Examiner also must
25 articulate some “reasoning with some rational underpinning to support the
26 legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir
27 2006).

This “reasoning with some rational underpinning” must identify some apparent reason for combining the prior art elements in the fashion claimed. The reasoning may appeal to common sense to show that the apparent reason has some rational underpinning in the facts established by the *Graham* factual inquiries. “Common sense has long been recognized to inform the analysis of obviousness if explained with sufficient reasoning.” *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328 (Fed. Cir. 2009). Our reviewing court has explained that “the use of common sense does not require a ‘specific hint or suggestion in a particular reference,’ only a reasoned explanation that avoids conclusory generalizations.” *Id.* at 1329 (quoting *DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1366 (Fed. Cir. 2006)).

ANALYSIS

In support of the conclusion that the subject matter of representative claim 1 would have been obvious from the combined teachings of Åsum and Blank, the Examiner reasons “[i]t would be obvious to one of ordinary skill in the art to modify Åsum to include abrasive on both sides as taught by Blank in order to deliver the abrasive action to the desired locations.” (Ans. 3.) In support of the conclusion that the subject matter of claims 7, 9, 14 and 16 would have been obvious from the combined teachings of Åsum and Blank, the Examiner reasons “[i]t would be obvious to one of ordinary skill in the art to modify the above combination (of the teachings of Åsum and Blank) to include using different abrasives on different sides as shown by Kyotani in order to deliver the desired degree of abrasive to the desired locations.” (Ans. 4.) The Examiner’s reasoning in both instances appeals

1 to common sense. The Examiner's appeal to common sense not only
2 provides apparent reasons for modifying Åsum's abrading device or
3 interproximal strip 22 in the fashion claimed but also provides rational
4 underpinning for these reasons.

5 In particular, the Examiner finds that Åsum discloses in combination
6 each limitation recited in representative claim 1 except a fourth abrasive
7 zone on a second side. (FF 1-2 *supra*.) Blank teaches that it is well known
8 to use abrasive on one side or on both sides of an abrasive dental tool. (FF 3
9 *supra*.) We find that Blank also teaches:

10 [t]wo abrasive sides permit both distal and mesial
11 interproximal surface sanding with a push or pull
12 pressure, respectively. This makes the tool more
13 versatile, allowing the user to work on both the
14 mesial surface of the most distal tooth, and the
15 distal surface of the more mesial tooth, without
16 having to withdraw the tool from between the
17 teeth, change blades, and re-enter the interproximal
18 space.

19 (Blank, col. 4, ll. 2-12.) Teachings such as this passage of Blank indicate a
20 rational underpinning for the conclusion that that one of ordinary skill in the
21 art reasonably would have expected that modifying Åsum's interproximal
22 strip 22 to include abrasive on both sides would enable the strip to deliver
23 abrasive action to more than one desired location.

24 The Examiner finds that the combined teachings of Åsum and Black
25 fail to disclose or suggest an interproximal strip with a third zone comprising
26 a second abrasive material disposed on a first face of the interproximal strip
27 and a fourth zone comprising a third abrasive material disposed on a second
28 face of the interproximal strip such that the second abrasive is different than
29 the third abrasive. Kyotani teaches using different abrasives on one side or

1 on different sides of an interproximal strip. (FF 4 *supra*.) We find that
2 Kyotani also teaches that conventional strips, after being bent during use,
3 were difficult to arrange at the time of storage. “It was thus difficult to
4 select a proper [strip] of the desired roughness from several types of
5 polishing strips that are irregularly arranged.” (Kyotani, col. 2, ll. 2-4.)

6 We find that Kyotani additionally teaches that, because Kyotani’s
7 strips are designed to be restored to a straight shape during sterilization so as
8 to be easily arranged in storage. “It is thus easy to select the strip having the
9 desired roughness from the storage place.” (Kyotani, col. 4, ll. 19-20.)

10 These passages indicate that users of interproximal strips would choose
11 different strip roughnesses as desirable for different applications. Teachings
12 such as these passages of Kyotani indicate a rational underpinning for the
13 conclusion that one of ordinary skill in the art reasonably would have
14 expected that modifying Åsum’s interproximal strip 22 in view of Blank to
15 include a third zone comprising a second abrasive material disposed on a
16 first face of the interproximal strip and a fourth zone comprising a third
17 abrasive material disposed on a second face of the interproximal strip; and
18 further modifying Åsum’s interproximal strip 22 in view of Kyotani such
19 that the second abrasive is different than the third abrasive, would enable the
20 strip to deliver desired degrees of abrasive to desired locations.

21 The Examiner is not required to support the reasoning underlying the
22 rejections of claims 1, 4-6 and 8 over Åsum and Blank, or the reasoning
23 underlying the rejections of claims 7, 9, 14 and 16 over Åsum, Blank and
24 Kyotani, by citing either a passage from Åsum that might have provided one
25 of ordinary skill in the art reading Åsum motivation to look for Blank; a
26 passage from Åsum or Blank that might have provided one of ordinary skill

1 in the art reading Åsum or Blank motivation to look for Kyotani; or text
2 from a prior art reference that shows that one of ordinary skill in the art
3 would have been motivated to combine the teachings of Blank with those of
4 Åsum. The combined teachings of Åsum and Blank together with the
5 Examiner’s reasoning make this showing. *See Perfect Web Techs.*, 587 F.3d
6 at 1329; *see also KSR Int’l, Corp. v. Teleflex, Inc.*, 550 U.S. 398, 418
7 (2007)(“[T]he analysis need not seek out precise teachings directed to the
8 specific subject matter of the challenged claim . . .”).

9 Neither is the Examiner required to provide a declaration under 37
10 C.F.R. § 1.104(d)(2) to validate this reasoning. As the Examiner points out,
11 “the rejection is not based on knowledge of the [E]xaminer, instead, it is
12 based on evidence showing the claimed elements and motivation suggesting
13 the applied combination.” (Ans. 4.) The particular statement as to which
14 the Appellant demands a declaration under 37 C.F.R. § 1.104(d)(2)
15 expresses a legal conclusion as to what apparent reason a hypothetical
16 person of ordinary skill in the art might have had to combine prior art
17 elements in a fashion in which the elements cannot, and need not, be proven
18 to have ever been combined. The Appellant is demanding that the Examiner
19 swear to a legal conclusion and not to a finding of contested fact.

20 On the other hand, the Examiner’s reasoning does not adequately
21 support of the rejection of claim 17. The Examiner states that “the method
22 steps [of claim 17] are obvious uses of the shown structure to one of
23 ordinary skill in the art.” (Ans. 3.) This statement is a conclusory
24 generalization in that it does not articulate a reason why the method steps
25 would have been obvious from the structure described by Åsum and Blank.

1 The Examiner also states that the step of “increasing said created
2 space by abrading said teeth with said first and second faces of said
3 interproximal strip” recited in claim 17 would have been obvious from the
4 combined teachings of Åsum and Blank because “the prior art teaches
5 creating a space by abrading and it is general knowledge that if a space is
6 created by abrading, that the space can be further enlarged by further
7 abrading.” (Ans. 5.) Even accepting this reasoning to be correct, the
8 reasoning does not go far enough to explain why it would have been obvious
9 to further enlarge the space by abrading the teeth with both first *and* second
10 faces of the interproximal strip. Blank’s teaching concerning the use of a
11 dental tool including a blade member with abrasive on both sides (*see* Blank,
12 col. 4, ll. 2-14) does not provide a rational underpinning for the Examiner’s
13 conclusion that the claimed method, including the step of “increasing said
14 created space by abrading said teeth with said first and second faces of said
15 interproximal strip,” would have been obvious.

16 17 CONCLUSIONS

18 The Examiner has articulated reasoning with some rational
19 underpinning sufficient to support the conclusion that the structure of
20 representative claim 1 would have been obvious from the combined
21 teachings of Åsum and Blank. Therefore, we sustain the rejections of claims
22 1, 4-6 and 8 under § 103(a) as being unpatentable over Åsum and Blank.
23 Although claims 10-13, 15 and 17 are method claims rather than structural
24 claims like claims 1, 4-6 and 8, the Appellant provides no arguments
25 addressing the patentability of claims 10-13 and 15 over Åsum and Blank
26 separate from the arguments directed against the rejection of claim 1.

Therefore, we sustain the rejections of claims 10-13 and 15 under § 103(a) as being unpatentable over Åsum and Blank.

The Examiner has articulated reasoning with some rational underpinning sufficient to support the conclusion that the methods of claims 7, 9, 14 and 16 would have been obvious from the combined teachings of Åsum, Blank and Kyotani. Therefore, we sustain the rejections of claims 7, 9, 14 and 16 under § 103(a) as being unpatentable over Åsum, Blank and Kyotani.

The Examiner has not articulated reasoning with some rational underpinning sufficient to support the conclusion that the method of independent claim 17 would have been obvious from the combined teachings of Åsum and Blank. Therefore, we do not sustain the rejection of claim 17 under § 103(a) as being unpatentable over Åsum and Blank.

DECISION

We AFFIRM the Examiner's decision rejecting claims 1 and 4-16.

We REVERSE the Examiner's decision rejecting claim 17.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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